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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/980,882	11/02/2001	Thomas Scholl	Mo-6753/LeA 33,677	1975

7590 08/26/2003

Bayer Corporation
100 Bayer Road
Pittsburgh, PA 15205-9741

EXAMINER

WYROZEBSKI LEE, KATARZYNA I

ART UNIT	PAPER NUMBER
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1714

DATE MAILED: 08/26/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/980,882	SCHOLL ET AL.	
	Examiner	Art Unit	
	Katarzyna Wyrozebski Lee	1714	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 1101.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 6-10 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 6-10 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) <u>1101</u> . | 6) <input type="checkbox"/> Other: _____ |

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 6-9 are rejected under 35 U.S.C. 102(b) as being anticipated by WITTE (GB 1,575,115).

The prior art of WITTE discloses modified rubber for use in silica containing rubber mixtures. Modified rubber is utilized with the mixtures, since according to WITTE non-modified rubbers have poor compatibility with silica filler.

The solution polybutadiene is mixed with mercapto compound containing carboxylic acid group according to formula 2 (see page 2 of WITTE). The amount of the mercaptan compound in the rubber of WITTE is 0.1-0.6 parts. After reaction is complete solvent is removed.

The modified rubber of WITTE is utilized in a composition having high content of silica filler (90 parts) along with vulcanizing agents such as sulfur and accelerators. The composition was prepared on laboratory mixing rolls and subsequently vulcanized at 150°C, which in turn suggests that the mixture has been molded into an article.

Since the Mooney viscosities of the rubber in the examples utilizing carboxyl-mercaptans 47 @ 100°C) are within the same range as Mooney viscosities of the present invention (30-150

@ 100°C) then the glass transition of the carboxy mercaptan-modified rubber of WITTE is bound to overlap with the glass transition of the rubber of the present invention.

In the light of the above disclosure, the prior art of WITTE anticipates requirements of claims

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

5. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any

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evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

6. Claim 6-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over WITTE (GB 1,575,115) in view of OSHIMA (US 5,250,630).

The discussion of the disclosure of the prior art of WITTE from paragraph 2 of this office action is incorporated here by reference.

The difference between the present invention and the disclosure of the prior art of WITTE is recitation of tire article comprising rubber containing carboxylate groups.

With respect to the above difference, the prior art of OSHIMA discloses pneumatic tire tread, which comprises conjugated diene rubber modified with carboxylate group and which composition is vulcanized and molded to obtain the tire component.

The reinforcing filler in OSHIMA is either carbon black or silica (col. 3, lines 60-68). The filler is utilized in amount of 1-250 parts by weight (col. 4, lines 5-8).

Resulting tire has excellent heat resistance, due to presence of additional crosslinking sites. The additional crosslinking and formation of stable bonds renders the composition more heat stable.

In the light of the above disclosure it would have been obvious to one having ordinary skill in the art at the time of the instant invention to utilize the composition of WITTE in formation of tire product of OSHIMA. The prior art of WITTE specifically discloses that the

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carboxyl-mercaptan modified rubber is utilized with compositions having high filler loadings and it is vulcanized, wherein these two aspects of this prior art are necessary in order to make a tire. In addition, rubber of WITTE since it contains additional carboxyl groups, will also be expected to give composition having high heat resistance due to increased amount of crosslinking sites.

7. Claims 6-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over BROWN (US 2,662,874) in view of KITAHARA (US 4,412,031).

The prior art of BROWN discloses formation of diene rubber by emulsion polymerization and which rubber is then in solution modified with a compound having COOH groups.

The rubbers to be modified are diene rubbers such as polybutadiene, isoprene and the like as well as its copolymers with styrene (col. 2, lines 6-15).

The agents or compounds utilized to modify the rubber of BROWN include mercapto substituted carboxylic acids (col. 3, lines 41-75). The modifying compound and rubber are reacted as it was mentioned in solution or dispersion at a temperature of 25-150°C (col. 4, lines 52-53). Upon reaction, the content of the carboxylate groups is 0.1-0.3 per 100 parts of polymer.

The difference between the present invention and the disclosure of the prior art of KITAHARA is use of solution polymerized rubber and formation of tire comprising filler.

With respect to the above differences, the prior art of KITAHARA discloses solution polymerized rubber (col. 5, lines 1-3), which is modified with carboxylate group. Other diene type rubbers that can be utilized include polyisoprene, SBR and the like (col. 1, lines 45-68).

The composition comprising modified rubber along with non-modified rubber also includes carbon black, vulcanizing agents and other auxiliaries required for making of a tire tread.

Use of carboxy-modified rubber in tire composition results in articles having increased adhesion and green strength due to presence of polar groups such as carboxylate groups.

Although the prior art of KITAHARA does not disclose the glass transition of the modified rubber, such property would be evident from the fact that the Mooney viscosities of the rubbers are in a range of 60-70, which is further within the range of the rubbers of the present invention.

In the light of the above disclosure, it would have been obvious to one having ordinary skill in the art at the time of the instant invention to utilize carboxyl-mercaptan modified rubber of BROWN in the tire article of KITAHARA and thereby obtain the claimed invention.

Utilizing modified rubber of BROWN would also result in composition having polar carboxylate group and thereby would result in article having greater adhesion properties.

Specification

In the amendment filed on 11/2001 the applicants have submitted new Tables 1 and 2. The examiner requests that Table 1 be resubmitted so that all the components (especially top three) are presented in clear fashion. In the instant case the component does not correspond to the same line as the amount of the given component.

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Per requirement of MPEP, the Abstract needs to be submitted on a separate sheet of paper. Current Abstract is part of the amendment, which is not acceptable.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Katarzyna Wyrozebski Lee whose telephone number is (703) 306-5875. The examiner can normally be reached on Mon-Thurs 6:30 AM-4:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vasu Jagannathan can be reached on (703) 306-2777. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.


KIWL

August 20, 2003